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THE REGIONAL DIMENSION: SECOND INDUSTRIAL DEVELOPMENT DECADE FOR AFRICA

Industry in Africa: challenge and response

Prepared by the UNIDO Secretariat

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## EXECUTIVE SUMMARY


The purpose of the present paper is to set out key industrial development issues for Africa in an international context and to outline the response of UNIDO. The eleventh conference of African Ministers of Industry, held at Port Louis, Mauritius, 31 May to 3 June 1993, considered a UNIDO paper on this topic and endorsed it in its Resolution 4 (XI) on the African Common Position for the fifth session of the General Conference of UNIDO. The Director-General was also called upon to submit to the General Conference his concepts on the response of UNIDO to the industrialization problems of the African countries. The present paper, which is an elaboration of the original Mauritius paper, is submitted in response to that request.

Economic performance in Africa has not kept pace with population growth. The industrial share of the gross domestic product (GDP) has remained fairly constant over recent years, with manufacturing rising from 10.1 per cent of GDP in 1983 to 11.7 per cent in 1991. Within these aggregated figures there is considerable diversity at the country level: those with the largest industrial sector are generally dependent on exports of unprocessed or semi-processed minerals or hydrocarbons. Africa's production structure remains highly skewed.

A combination of external and internal factors, including deteriorating terms of trade, external debt, and frequently inappropriate economic policies led to economic decline in the 1980s. Policy responses have included the Lagos Plan of Action, the United Nations Programme of Action for African Economic Recovery and Development and the implementation of a number of structural adjustment programmes. The investment climate in the region is however still not attracting sufficient foreign investment.

At the same time, world industry is undergoing significant changes owing to accelerating technological change, increased investment costs and reduced product life cycles. In response, there has been reorganization of production, reorientation of government policies and strategies, and regional integration. The European Single Market, the North American Free Trade Agreement (and the moves towards an African economic community) are all examples of this. Environmental concerns are increasingly reflected in industry and trade policy. The pace of change in technology has led to a competitive production system, where a skilled and flexible workforce and nearness to markets is more important than labour costs. At present, African industry has little connection with this system, and lacks the dynamism, technological content and management skills needed to compete internationally.


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Key themes for African industrial development towards the year 2000 include the following:

Privatization and private sector development

The main tasks of policy formulation will include the provision of supportive environment including macroeconomic stability and also a simplification of procedures and controls. This is especially important because the main tasks of industrialization will be the creation of new enterprises. Privatization of existing enterprises will be hampered by a lack of national entrepreneurs and technicians.

Competitiveness

Given the need for African industry to expand its mandate especially internationally, competitiveness is an important theme, calling for high efficiency, good management, and emphasis on quality, design and packaging. This in turn calls for close attention to technology choice and human resource development. The impact of industrial automation will increasingly determine the range of options available to African as well as other countries.

Small- and medium-scale industry

The advantages of small- and medium-scale industries include employment generation, import substitution, encouragement of women's entrepreneurship, rural development, and increased flexibility and resilience of the industrial sector and it is important that these benefits are not overlooked in an excessive concentration on large projects. This will call for increased capabilities to provide services for small- and medium-scale industries.

Environment and energy

Specific environmental problems in Africa relate in particular to desertification, natural resource degradation, effluent treatment and industrial pollution. There will be a need to upgrade capabilities for assessment and regulation, and to analyse the manufacturing implications of improved environmental control. Energy conservation will be essential through audits, technology development and promotion.

Financial resources

The need to mobilize additional financial resources for African industrialization is particularly important. The development of new mechanisms for financing industry through equity participation is of special significance, and the build-operate-transfer mechanisms may also offer increasing opportunities to mobilize private and international capital.

The role of subregional integration

An increasing emphasis on measures that do not require unanimity and a comprehensive approach is most likely to bring success. The recognized role of the private sector is one that the subregional organizations can encourage, both by measures that allow the sector to operate more freely across borders and through the provision of services to it. Information and the encouragement of partnerships are also important.

In the future, there will be considerable possibilities for increased development at the sectoral level, including building materials, mineral processing, agro-industries, and industries related to telecommunications, transport and communications, health and the environment. But this growth will have to take place in the face of constraints on the development of the official development assistance and limited prospects for expansion of direct foreign investment. UNIDO in turn will, in the light of the need for new priorities and improvement of its services, have to develop a new response.

At the eleventh conference of African Ministers of Industry (CAMI XI) held in Mauritius, a ten-point programme put forward by UNIDO was approved (see pages 17 to 21 of the present document). Entitled "The challenge of Africa's industrialization and the UNIDO response", the programme will be implemented within the framework of national or subregional plans and programmes. In addition, it will be based on the Director-General's proposals (GC.5/23) on priorities and structural reform of UNIDO. Paragraph 55 of that document states that "UNIDO will base its delivery of services on the industrial development strategies drawn up by individual countries" and that "the strategies will be analysed by the Organization whereafter UNIDO programmes for individual countries will be jointly defined". The ten points in the programme are:

A. Assistance in the development of appropriate strategies for industrialization in the context of market-oriented economies, and in the formulation of policies, procedures and guidelines for the enhancement of initiatives for private sector development, including in sectors of national priorities and new areas of emphasis, particularly electronics and informatics.

B. Assistance in the development of increased regional industrial cooperation in such areas as: research and development; industrial products standards; total quality management; human resource development; industrial automation; packaging and design; marketing skills; industrial management skills; industrial repair and maintenance; enterprise accounting; inventory control; and production planning.

C. Implementation of an expanded programme for entrepreneurial training and development, up to the stage of preparation of business plans and development of linkages, including with foreign enterprises.

D. Implementation of a comprehensive programme for development of small and medium industries.

E. Development of sustainable institutional capability for industrial services and support for local enterprises in cooperation with local chambers of commerce and representatives of industry groups and associations.

F. Assessment of new technological applications in sectors and branches in African countries

and dissemination of technological information and provision of training facilities and linkages for African enterprises.

G. Assessment and determination of appropriate interrelationships between environmental and ecological needs and industrial growth and priorities in African countries.

H. Dissemination of information and provision of advanced management training for local entrepreneurs in African developing countries and development of sustainable institutional facilities for this purpose.

I. Expansion of investment promotion activities and assistance in identifying and contacting potential foreign partners on a continuing basis.

J. Increased dissemination of industrial information to African countries.

## Introduction

1. The purpose of the present paper is to set out key industrial development issues for Africa in an international context. The reasons for so doing are several. First, the low level of industrialization in Africa warrants special attention being given to a uniquely complex set of industrial development issues. These cover not only the problems of industrialization starting from an extremely low base, but also include the difficulties raised by strategies of industrialization in a context of special difficulties that may include one or more of the following:

- Rapid population growth;
- Uncontrolled urbanization;
- Inadequate infrastructure;
- Food shortages;
- Unfavourable climatic conditions;
- Civil strife.

2. A second major impetus for consideration of Africa's industrialization as a special case is the important changes that have taken place in political and economic terms within individual African countries, many African countries having already made the transition to multi-party democracy. All African countries are now committed to the private sector as the main engine of economic development for the future. To add to this, the movement in South Africa towards majority rule brings prospects of a new cooperative development in the Eastern and Southern African subregion and, more generally, in Africa as a whole.

3. A third set of reasons for special consideration of African industrialization reflects the changes in the world economy, that is the context in which African industrialization is taking place. Significant measures of industrial and general economic integration are taking place elsewhere: in North America, in Europe and in South-East Asia. These changes have been made in response to fundamental shifts in technology and their effect on the production system. African industry, if it is to grow and meet the expectations of its people, must become part of the world industrial system in order to achieve the necessary dynamism, efficiency, and long-term growth prospects.

4. This last consideration also indicates the need to keep under review the goals and implementation of the Industrial Development Decades for Africa (IDDA). The Second Decade has built upon the achievements of the first in that the priorities have been defined at the national and the subregional levels, but there is, owing to the accelerated pace of the change in the world economy, an ever more pressing need to review continuously the industrialization process in a wider international context. Again the emphasis on priorities (including at the level of individual projects) that characterizes the IDDA programme has to be tempered by the commitment made to the private sector as the main engine of growth. This means that it is private enterprises that will ultimately determine what priorities are actually followed. But it is a requirement of Government, and of international support to that end, that an enabling environment be created to sustain and encourage the individual industrial enterprises. It is for that reason that re-examination of priorities in an international context is necessary to determine what changes are needed in that support.

5. The fifth session of the General Conference takes place at a critical moment in UNIDO's history in which the role and purpose of the Organization are being closely examined with a view to determining how best it can contribute to the growth of developing countries in a changing world. At a broad level, Africa's industry faces not only indigenous difficulties but those created in the world economy by the ever accelerating pace of technological change and the consequent transformations of production. It is therefore all the more necessary that international support to industry in Africa be as timely and as targeted as possible.

6. The eleventh conference of African Ministers of Industry (CAMI) held at Port Louis, Mauritius, 31 May to 3 June 1993, considered the UNIDO paper "The challenge of African industrialization and the UNIDO response" in which the above questions were analysed and a ten-point programme of responses was proposed, which was endorsed by the Ministers in the common position adopted for the fifth session of the General Conference of UNIDO. 1/ The UNIDO document was also endorsed in a resolution on the statement of the Director-General of UNIDO. 2/ Further, most of the key themes for African industrialization identified in that document are also found reflected in the Mauritius Declaration on Africa's Accelerated Industrial Recovery and Development, in the context of the Second Development Decade for Africa (1993-2002) and beyond. 3/ The

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1/ See CAMI.11/13, annex IV, resolution 4 (XI).

2/ Ibid., annex V, resolution 5 (XI).

3/ Ibid., annex VII.

eleventh CAMI also called on the Director-General of UNIDO to submit to the fifth session of the General Conference his concept of how the Organization should respond to the industrialization problem of the African countries, taking into account the changes in the global economy.

7. The present document is intended to contribute to the analysis of some of those questions. It is organized as follows: chapter I describes industrialization in retrospect, attempting to summarize the achievements and the present weaknesses. Chapter II analyses the impact of emerging global trends on Africa's industrial development in the years to come. Chapter III examines the response needed to the difficulties prevailing and the challenges that are emerging. Chapter IV, in conclusion, reviews associated questions of international cooperation, and attempts to say what needs to be done by all those involved to improve support to industry in Africa to help it play a wider role and contribute to overall development.

## I. INDUSTRIAL GROWTH IN AFRICA

### A. General economic performance

8. The past five years have seen a continued decline in the economic performance of the region (excluding South Africa), as real gross domestic product (GDP) growth contracted from 4.8 per cent in 1988 to 1.9 per cent in 1992, admittedly an exceptionally bad year in which Southern Africa was hit by severe drought. At the same time, population growth in the region maintained a steady expansion rate of 3.0 per cent a year.

9. At the subregional level trends have been very uneven, with the countries of the 11-member Economic Community of Central African States (ECCAS) recording negative growth rates throughout the five year period (annual average of -1.9 per cent, with -2.5. per cent in 1992), the 16-member Economic Community of West African States (ECOWAS) showing positive but slowing real growth (average of 5.6 per cent, with 3.4 per cent in 1992), the five Maghreb countries also producing real growth, averaging 2.8 per cent, but only 1.6 per cent in 1992, and the 15-member 4/ group of countries of the Preferential Trade Area for Eastern and Southern African States (PTA) recording average real growth of 2.3 per cent with an exceptional year of negative growth (mainly attributable to the drought) of -0.14 per cent in 1992. Grouping all countries in the region into just two categories - net oil exporters and net oil importers - the exporters recorded average real growth of 4.0 per cent a year and the importers 1.9 per cent.

10. At the sectoral level, services accounted for 45.1 per cent of the region's total GDP in 1991, compared with 32.1 per cent from industry (of which manufacturing accounted for 11.7 per cent) and 22.8 per cent from agriculture. This sectoral breakdown of GDP has remained fairly constant over the last 10 years. In 1983, services contributed 42.4 per cent against 34.1 per cent from industry (manufacturing 10.1 per cent) and 23.5 per cent from agriculture, and the respective shares in 1987 were 46.1 per cent for services, 30.9 per cent for industry (11.3 per cent for manufacturing) and 23 per cent for agriculture.

11. In terms of contribution to growth, services made the largest contribution to expansion in total GDP over the five-year period 1988-1992, accounting for 45 per cent of total, with agriculture accounting for 24 per cent and industry 31 per cent of growth (see table 2). Industry accounted for 0.7 percentage points of total GDP growth in 1992 of 2.0 per cent and, within this share, manufacturing accounted for 0.3 percentage points.

### B. Industrial performance and structure

12. Behind this aggregation of statistics from 51 African countries, there lies a tremendous diversity within the national industrial sectors. Analysis at the country level reveals that those countries with the largest industrial sectors are, in fact, countries generally dependent on exports of unprocessed or semi-processed minerals or hydrocarbons. Hence, in 1991, industry accounted for 46.1 per cent of GDP in Angola (petroleum), 54.5 per cent in Botswana (diamonds), 54.3 per cent in Gabon (petroleum), 45.4 per cent in Nigeria (petroleum) and 46.9 per cent in Zambia (copper). African countries with the smallest industrial sectors were Comoros (10.5 per cent), Gambia (11.2 per cent), Somalia (8.8 per cent), Uganda (11.7 per cent) and the United Republic of Tanzania (10.3 per cent).

13. Looking at the manufacturing subsector, Zambia predominates, but again displays its overdependence on one basic commodity with manufacturing - mainly in the form of copper refining - accounting for 36.1 per cent of GDP. After Zambia comes Zimbabwe, which has one of the most diversified manufacturing sectors in the region, contributing 27.4 per cent of GDP, Mauritius with 23.2 per cent (up from 15.8 per cent in 1983 mainly as a result of its highly successful export processing zones), Swaziland with 20.9 per cent (more than half of MVA comes from sugar refining and a further quarter from pulp and paper), and Côte d'Ivoire, where manufacturing accounted for 18.1 per cent of GDP in 1991 and is based on a fairly well diversified range of activities, developed primarily by investing the proceeds from cocoa and coffee exports in the immediate post-independence period when world prices were high.

14. Yet in most of the region manufacturing accounted for less than 10 per cent of GDP in 1992, with the smallest sectors found in Equatorial Guinea (2.3 per cent), Comoros (3.8 per cent) and, in marked contrast to the size of their respective industries, Gabon (4.0 per cent) and Botswana (4.3 per cent).

15. The historical trend shows a slowing down in growth rates of manufacturing value added (MVA),

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4/ This is the categorization used by the African Development Bank (ADB). It should be noted, however, that there are now 19 members of PTA, and that data on Angola, Mozambique, Namibia and Sudan are not included in the ADB definition. Similarly, some countries belong to more than one regional organization, e.g. Burundi, to both ECCAS and PTA (see footnotes to table 1 for further details).

Table 1

Real GDP growth by subregion (at constant 1985 market prices)
1988-1992

(annual percentage changes)

| Subregion | 1988 | 1989 | 1990 | 1991 a/ | 1992 b/ | Average 1988-1992 |
|---|---|---|---|---|---|---|
| RMCS | 4.8 | 4.2 | 3.4 | 2.6 | 1.9 | 3.4 |
| ECCAS | -1.4 | -0.7 | -2.0 | -2.7 | -2.5 | -1.9 |
| ECOWAS | 8.2 | 5.7 | 6.7 | 4.1 | 3.4 | 5.6 |
| MAGHREB | 2.4 | 3.8 | 2.7 | 3.2 | 1.6 | 2.7 |
| PTA | 5.1 | 3.5 | 2.3 | 1.1 | -0.4 | 2.3 |
| NET OIL EXPORTERS | 4.8 | 4.8 | 4.6 | 3.3 | 2.7 | 4.0 |
| NET OIL IMPORTERS | 4.7 | 2.9 | 0.9 | 1.1 | 0.0 | 1.9 |

Source: African Development Report 1993, African Development Bank.

Notes: a/ Provisional estimates.

b/ Preliminary estimates.

Africa: Regional member countries (RMCs) of the African Development Bank.

ECCAS: Economic Community of Central African States (Burundi, Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea, Gabon, Rwanda, Sao Tome and Principe, and Zaire).

ECOWAS: Economic Community of West African States (Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, and Togo).

Maghreb: Algeria, Libyan Arab Jamahiriya, Mauritania, Morocco, and Tunisia.

PTA. Preferential Trade Area for Eastern and Southern African States (Burundi, Comoros, Djibouti, Ethiopia, Kenya, Lesotho, Malawi, Mauritius, Rwanda, Somalia, Swaziland, Uganda, United Republic of Tanzania, Zambia, and Zimbabwe).

Net oil exporters: Algeria, Angola, Cameroon, Congo, Egypt, Gabon, Libyan Arab Jamahiriya, Nigeria and Tunisia.

Net oil importers: All countries excluding the net oil exporters, as defined above.

Table 2

Sectoral contribution to GDP growth, 1988-1992

(in per cent)

| | 1988 | 1989 | 1990 | 1991 a/ | 1992 b/ |
|---|---|---|---|---|---|
| Agriculture | 1.5 | 1.1 | 0.2 | 1.2 | 0.2 |
| Industry | 1.0 | 0.9 | 1.8 | 0.7 | 0.7 |
| Mining | -0.4 | 0.4 | 0.4 | 0.5 | ... |
| Manufacturing | 0.5 | -0.1 | 0.5 | 0.3 | 0.3 |
| Services, etc. | 2.2 | 2.3 | 1.4 | 0.8 | 1.1 |
| GDP at 1980 factor cost | 4.7 | 4.3 | 3.5 | 2.7 | 2.0 |

Source: ADB estimates.

Notes: a/ Provisional.

b/ Preliminary estimates.

which averaged 6 per cent a year for the region as a whole during the 1970s but fell to an average of 4.1 per cent a year in the 1980s. One explanation behind this phenomenon is the wide-scale introduction of import-substitution policies in the industrial sector in the years immediately following independence. So long as world prices for the primary commodities that form the majority of the exports of the region remained relatively high, investment - mostly by Government - in industry was possible and laid the basis for these import-substitute manufacturing activities. As economic recession spread throughout the region in the 1980s, the weaknesses of this policy were underlined, investment flows dried up and the purchasing power of domestic consumers fell, with a resultant contraction in industrial output.

16. None the less, the growth rates appear fairly good when compared with those of world industry as a whole or with those of developing countries as a whole. Yet they give altogether too optimistic a view of industry in Africa. Relatively good growth rates mean very little when the industrial base is so small. The African share of world MVA in 1975 was a meagre 1 per cent and, nearly 20 years later, it is still some 1 per cent.

17. The range of manufacturing activities has also displayed a lack of dynamism in the post-independence period. Where transformation of natural resources does take place, this rarely goes beyond the semi-processing stage. Where manufacturing is aimed at the domestic market, the traditional sectors of brewing and tobacco still predominate, followed by textiles which, in many cases, do not even originate from home-grown cotton. Ventures into heavy industry have, in a large number of cases, resulted in a stream of costly but unsuccessful projects and the manufacture of capital goods and equipment is minimal.

18. Hence, the production structure in Africa remains highly skewed, and is concentrated in either semi-processing of export commodities or branches that are closest to final demand in the domestic market. The largest industrial branch in world industry in value terms is non-electrical machinery, followed by transport equipment, electrical machinery and food products. In Africa, the three largest industrial branches are food products, textiles and other non-metallic minerals. Most striking is the absence of machinery, which indicates not only that the creative forces involved in technological terms in this industry do not act as an agent of change in African industry but also that African countries are highly dependent on imports not only of capital goods but also a wide range of consumer goods.

## C. Factors affecting industrial development in the region

### Economic reforms and policy approaches

19. The 1980s saw one African country after another fall into economic decline under the combined impact of both exogenous and endogenous factors - steadily deteriorating terms of trade as world market prices for primary commodities from Africa collapsed, the growing realization that the enormous volume of external debt contracted in the second half of the 1970s and early 1980s was beyond the borrowers' servicing capacity, failure on the part of Governments to invest in maintaining already inadequate infrastructure, or in providing sufficient education and training facilities, and the application of frequently inappropriate economic policies, such as overvalued exchange rates, overtaxation of exports, and inefficient state marketing of agricultural produce.

20. However, it was the Africans themselves who, at the beginning of the 1980s, took a major initiative to collectively review the development process and design an action plan for growth and economic development. That plan, the Lagos Plan of Action, was soon followed by the World Bank's Action Programme for Sustained Development in Sub-Saharan Africa (1984). The African Priority Programme for Economic Recovery was approved by the Heads of State and Government of the Organization of African Unity (OAU) in 1985 and in 1986 the United Nations Programme of Action for African Economic Recovery and Development (UNPAAERD), 1986-1990 was adopted by the United Nations General Assembly. In 1989 the World Bank issued its Long-Term Perspective Study on Sub-Saharan Africa - from Crisis to Sustainable Growth, which gave further orientation to the policies to be pursued. Given the fact that substantial parts of those programmes were implemented, the efforts of the African countries should be commended. For instance, by early 1993, no fewer than 28 countries of the region had structural adjustment programmes in place.

21. Another issue of crucial importance to the 14 African members of the Franc Zone* is exchange rate policy. That membership of the Zone has brought many positive benefits, such as free convertibility of the currency, monetary discipline and a common currency in two large subregional economic blocs (the Union monétaire ouest-africaine and the Union douanière et économique de l'Afrique centrale) is undeniable but some opinion suggests now that the franc CFA (Communauté Financière Africaine), which has been maintained at a fixed parity with the French franc since 1948, has become increasingly overvalued. Internally, this would imply that even when a manufacturer is operating at optimal efficiency, he could not compete with imported products, added to which many countries have the handicap of a small domestic market, and can barely dream of trying to export manufactured products anywhere other than within the Franc Zone region. Yet domestic industry in Franc Zone countries is expected to compete with contiguous States outside the Zone that have devalued consistently under structural adjustment programmes, and this in an era of liberalizing trade policy where any form of protection for the domestic producer is unthinkable.

### The investment climate

22. In an era of economic liberalization, tenders for the purchase of public enterprises are perforce open to both national and foreign bidders. But

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* The member States of the Franc Zone are: Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Equatorial Guinea, Gabon, Mali, Niger, Senegal, Togo.

confidence in the economic prospects of the region is being shown only by two distinct groups of foreign investors - those from former colonial powers who are familiar with the region and see a natural opportunity to stem the attrition of long-entrenched interests and a small band of entrepreneurs with no track record but who are prepared to take high risks. There is also cause for concern over the evaluation of those state-owned assets slated for privatization, as has been seen all too clearly in Eastern Europe.

23. Yet unlike Latin America or China, for example, there is little indication of a major upturn in foreign direct investment into the region. Firstly, the lack of capital markets in the region limits access for the investor to secondary markets should he wish to divest himself of his holding or even wish to expand into other ventures. Secondly, until nationals of the region themselves display confidence in investing locally, it is unrealistic to expect shows of confidence from bona fide foreign investors.

24. Direct foreign investment in Africa is particularly low for a number of reasons. Firstly, investment costs are high; the lack of a suitable physical infrastructure may often require additional expenses, and construction costs and the fact that high transport cost will probably have to be paid for the equipment also contribute to this. Secondly, operating costs are high. There is a shortage of skilled labour, and although Structural Adjustment Programmes are contributing to a simplified system of controls, there are still bureaucratic delays in many processes associated with the operation of a manufacturing firm such as permits, licences, foreign exchange allocations and the like. Incomes in African countries are low and domestic markets are therefore small. However, the location of many African countries, far from more developed markets, means that transport costs and thus final prices will be higher than if the factory had been located in another part of the world. In many cases productivity is also low, owing to inadequate skills of the labour force and insufficient attention to industrial training.

## II. THE IMPACT OF CHANGES IN WORLD INDUSTRY

25. Three main factors can be identified at work in world industry that are determining its shape and structure and the response of Governments and private enterprises. The first factor is accelerating technological change. This means that the pace of change is increasing, spurred on by competition which itself is increasing, owing to information availability, increased openness of international trade and globalization of financial markets. Accelerating technology change is devaluing old resources and creating new ones, and it affects both products and processes.

26. A second characteristic factor at work at present in world industry is increased investment costs. The new technologies are more flexible, more powerful, more attractive and more competitive, they provide a better possibility of winning on world markets and they minimize the diseconomies in environmental terms but they cost more.

27. The third factor at work is reduced product life cycles, which means that the time for a product to become obsolete is growing shorter and shorter. This factor, combined with increased investment costs, means that, increasingly, management decisions become bigger and are taken under more and more pressure. Investment decisions are no longer something that can be deliberated over for several years. An attractive opportunity must be seized as soon as it is identified, otherwise delays will render invalid the conclusions of the feasibility study concerned. In general, technological change is a continuous series of developments. There are few resting-places on the road to progress.

28. In general there have been three main responses. The first is reorganization of production, which means that, at the level of the enterprise, the decision has been taken to reorganize the various stages of the production process from design to production to marketing. Companies are increasingly ready to:

(a) Redistribute geographically the production stages, so different components of the final product can be made in different parts of the world;

(b) Devolve or hand over responsibility for production or industrial services, so that some parts of production will be subcontracted to other firms;

(c) Improve speed and process of communications.

29. A second major response is a reorientation by the Governments. The general role of the State as an economic agent has been fundamentally re-thought in most parts of the world. However, the specific role of Government with respect to the industrial sector has also been examined with rather different conclusions from those arrived at for the economy as a whole. Manufacturing has always been seen as a key sector, as the most dynamic and the most technologically oriented and as the one with the best prospects for sustaining economic growth in the future.

30. A further new component of industrial policy issues is that of the environment. The growing concern among both developed and developing countries with respect to environmental issues is changing fundamentally the economic foundations of industrial production and, increasingly, Governments are changing the rules of the game on the operation and the location of industry. Consumers (i.e. voters) are in many respects in advance of Governments in their thinking and it may be expected that further policy changes and regulatory developments will take place. The convergence of trade and industry policies is thus being compounded by the addition of enviornmental policy. This convergence, in turn, is creating pressures against unfair competition, and it can be expected that any attempt by countries to outbid one another for foreign investment in terms of how tolerant they will be of environmental degradation will not succeed. Even if they were unwise enough to pursue such a short-term view this would be characterized as unfair competition and products of such factories would face punitive duties once they were exported to other parts of the world.

31. The significance of government action is likely to continue but it will take new forms: there will be a new emphasis on providing facilities and support. There is a new emphasis

on providing a stable operating environment for industry both by simplifying the administrative framework, by emphasizing technical standards as a basic reference point for industrial development and technological innovation and by a continued encouragement of financial markets, mobilizing funds through the liberalization of exchange rates, capital movements and regulatory frameworks, thus allowing free range to the creation of financial instruments appropriate to the specific needs of individual firms. Similarly, Governments are placing renewed emphasis on the development of human resources to provide not only the specific skills needed by particular branches of industry (such as in electronics, informatics, and biological sciences), but also emphasizing business skills and strategic analysis capabilities to provide management resources, to stimulate entrepreneurship, and to provide the flexibility and imaginative approaches needed to respond to the problems of accelerating changes. The internationalization of industry, already referred to, has found a response in the emphasis in public policy on providing improved communications, both in terms of transport facilities and telecommunication infrastructures. In many cases liberalization has been pursued in these fields also, which has provided a further stimulus to their development. Governments have also played an increasing role as representatives of their own industries in trade negotiation, which has had a significant manufacturing content. The role of technical standards has also become a concern of high-level government policy, given its links to the internationalization of production and its potential for encouraging or limiting competition.

32. Another response to the challenges of technological change, decreasing product life cycles and increasing investment costs, has been the movement towards regional integration. Economic cooperation between groups of countries has always existed as an objective. Now, however, the regional economic integration process is receiving an important new impetus from those accelerating forces of technological change already referred to. In particular the demonstration effect of the Single European Market may have encouraged not only the formation of the North American Free Trade Agreement (NAFTA) but also the renewed emphasis within the Association of South-East Asian Nations (ASEAN) on tariff reduction. Cooperation has become not so much a question of banding together in order to ensure more efficient pursuit of long-term development goals but rather banding together to try to ensure survival against what is seen as strong competition in other parts of the world. Moves by African Governments towards the creation of an African Economic Community have been brought about not only by a sense of frustration with what has been so far achieved but also a determination that in the growing internationalization of world industry, in which the stage may be dominated by major economic powers, Africa must not be left behind. Thus the goal exists of an African Economic Community by the year 2025, and the major sub-regional integration efforts in Africa are steps to this end.

33. The growing international trend towards mergers and alliances is partly a consequence of measures such as the Single European Market but, more importantly, it is a reflection of competitive pressures. The pace of change and the requirements of competitiveness, especially in terms of contact with markets, technological development, logistics and business services, are such that in many fields only larger companies can survive. There is a need, especially in high technology industry such as computers and electronics for companies to minimize the risks of technological development by what in effect are anticipated market-sharing agreements. Technological development takes place in consortiums or with specific strategic alliances between firms that in other respects would be rivals. The formation of strategic alliances is also encouraged by the need to have a wide range of skills and experience of different markets, in order to have the flexibility needed to deal with change. A complex and rapidly changing system of production has developed in world industry with a continuous reallocation of resources, labour content, and a high level of skills among those engaged. It is a production system that evaluates its input structure rigorously and frequently. Flexibility in the workforce, a high degree of skills and nearness to markets are more important than labour costs.

34. It is clear that African industry has little, if any, connection with this system. There are of course important exceptions. Some African countries have relatively sophisticated manufacturing sectors where a few companies have indeed managed to create their own links. Other countries have sometimes an active foreign-owned industrial sector that can be considered as part of a wider system but, in general, the industrial scene in African countries is characterized by enterprises which, for a number of reasons, lack the dynamism and technological content of modern industrial companies in the developed world and in more advanced developing regions.

35. African industry in general does not have research and development (R and D) capacities nor adequate maintenance capacities and for this and other reasons, capacity underutilization is a characteristic of industry in Africa. Capacity underutilization derives from a wide range of causes. These include lack of maintenance skills, shortage of spare parts and equipment (often due to lack of foreign exchange), shortage of raw materials and inadequate power supplies. However, another cause of capacity underutilization is a lack of demand for the products, and very often this lack of demand owes to the fact that demand was inadequately estimated in the first place. Many examples can be found of over-capacity in structural terms, in which factories were built with the most optimistic expectations as to possibilities for selling the products.

36. The question of industrial management skills is perhaps the most pervasive single problem in African industry. Attention has, rightly, often focused on the weakness of African industry in terms of its technical skills, and in specific areas of technology such as industrial maintenance and engineering resources. However, general management skills are the most crucial of all: the ability to summarize a situation, to make decisions, to allocate priorities, to collect and interpret quantitative information in a way that allows the enterprise to make the right decisions - these are all skills that need both solid educational attainments and specific training in industrial management skills. The occasional

self-taught and successful entrepreneur does not disprove this point. For every one of these there are many enterprises that are inexorably declining because their managers can neither analyse their strengths and weaknesses nor take necessary action in response.

## III. KEY THEMES FOR AFRICA'S INDUSTRIAL DEVELOPMENT TOWARDS THE YEAR 2000

### A. Privatization and private sector development

37. Private sector development as noted, has been espoused by most African Governments as the principal means by which industrialization, and overall economic growth, will take place. It is clear, however, that one of the main tasks of policy formulation in the immediate future will be the articulation of private sector development policies, especially in the field of industry. Such policies will have three main components:

(a) A supportive environment;

(b) A system of industrial services;

(c) Strategic intervention as appropriate.

38. A supportive environment means more than a desirable stability in macroeconomic variables. Certainly, low inflation, low interest rates, a realistic and stable exchange rate and similar considerations are necessary conditions for industry to grow, but a number of other elements will also be required. The question of information availability has already been referred to, not only for access to technological information, but also to make available market information and news about potential new products and sources of raw materials. The Government has an important duty to ensure as free a flow of information as possible. In addition, there is a basic requirement to liberalize economic activity in general; this means a reduction in bureaucratic controls on enterprises and the release of creative energies. With the help of structural adjustment programmes, considerable progress has been made in the achievement of stability in the main macroeconomic variables. Privatization has proceeded in many countries and for this reason the industrial sector has achieved an important precondition for its future progress.

39. It must be recognized, however, that the number of industrial enterprises in Africa at present is very small. The main tasks of industrialization will be the creation of new enterprises, rather than the privatization or the rehabilitation of existing ones. Creating new enterprises is necessary because numbers are so small that in many cases a critical mass of industries, one that could grow into a self-sustaining complex of supportive industries in different branches, does not exist. Therefore the preconditions for dynamic growth are absent. It is also clear that among the factors deterring new entrants will be bureaucratic obstacles to setting up manufacturing activities. These involve not only the necessary licences and permits to be obtained but also a considerable amount of regulatory control on the hiring and firing of staff as well as control of wage levels. To this must be added the special problems of import and export. Manufacturing in Africa will be more dependent on the import of raw materials, capital goods, and spare parts than in other parts of the world. Foreign exchange shortages and currency control and allocation systems will bear more heavily on the manufacturing sector than on other economic activities that take place in the country. Time-consuming processes, even if the end result is favourable, means that the time of the entrepreneur is spent in unproductive activities; instead of concentrating on the manufacturing process and how it can profitably be undertaken and carried out, energies have rather been channelled in the often frustrating task of obtaining permission for one operation or another.

40. A trend of particular relevance to the industrial sector is the wide-ranging promotion of privatization, particularly so as most of the large-scale industrial projects in Africa have tended to be wholly or partly State-owned. The performance of many such industrial enterprises is ample testimony to poor management practices and, frequently, inappropriate choice of products in the first place. Clearly, some form of rehabilitation is necessary but there is room for reflection as to whether it was the mere fact of public ownership of these enterprises that condemned them to failure or merely poor investment decisions and inefficient management, independent of the ownership issue. In practice, privatization programmes in the region - as currently conceived - are proving painfully slow to implement and are encountering numerous obstacles.

41. In many countries there is a dearth of national entrepreneurs and technicians to take over and to manage these state-owned concerns, although there is a wealth of entrepreneurship and technical expertise among nationals living outside the region. Similarly, although there may appear to be a lack of investment funds for privatization, there are massive amounts of flight capital invested outside the region. Moreover, as privatization is being carried through in a liberal economic environment, no distinction is drawn between local and foreign investors. Consequently, widescale foreign ownership of industry in the region is the likely outcome of these programmes, bringing with it the risk that profits will be repatriated and not re-invested within the region itself.

### B. Competitiveness

42. Competitiveness is the ability of an enterprise, a sector, or a country to hold or increase a share of the market. For an enterprise, the market may be a combination of the domestic and the international market. For a country, the same may be true: worries about competitiveness often focus as much upon the share of imports in the country concerned as upon its share of world trade. Competitiveness is important because the share of the market may be an important determinant of the profitability of an enterprise. For a country, national competitiveness may be an important determinant of income levels and of growth prospects for the future.

43. Enterprise strategies to increase competitiveness have several components. Competitiveness may be enhanced through a combination of the following:

(a) Price reduction;

(b) Product design;

(c) Quality improvement;

(d) Improved marketing;

(e) Improved distribution;

(f) Innovation.

44. Similarly industrial policies to improve competitiveness have several components. They include combinations of the following:

(a) Trade regulations;

(b) Technology policies;

(c) Human resource development programmes;

(d) R and D programmes;

(e) Industrial standards;

(f) Institutional development;

(g) Export promotion;

(h) Investment incentives;

(i) Development financing institution promotion.

45. In view of the growing integration of the world economy, and the need for developing countries to expand their markets, competitiveness is becoming an important theme. Given the small size of many African markets, the need to increase exports has been an important determinant of industrial policy. Much attention has rightly been paid to the possibilities offered by regional integration schemes as a means of expanding the market for industrial products. However, the share of intraregional trade in the total trade of most countries remains small. Moreover, in many cases, production structures are similar and the opportunities for exchange of products, particularly manufactures, are limited for this reason. A focus on world markets will, of necessity, be an increasing component of industrial strategies.

46. Elements of this focus will include the following: appreciation of trends in world industry, identification of market niches, and increasing the competitiveness of domestic industry in order to make it ready to export successfully to world markets. Increasing competitiveness has several implications. It means not only a high degree of efficiency and good management in conventional terms. It must also include an enhanced emphasis on quality, on design, on packaging, etc. This, in turn, calls for close attention to technology choice and to human resource development. The growing internationalization of product standards, and the spread of quality standards, especially ISO 9000, indicates the degree to which competitiveness has found practical expression in the strategies of companies in developed countries and in many developing countries.

47. Development of the necessary institutional support in Africa will take time, and it cannot be expected that all enterprises can immediately be turned towards an export-oriented strategy in which products and processes are competitive with the best international practice. For this reason, as a significant means of quality upgrading as well as of technology acquisition, particular attention may be directed towards the formation of partnerships between enterprises in developed and developing countries. In some cases, straightforward subcontracting arrangements can provide significant benefits by allowing African enterprises access to the latest trends in consumer demand and assistance in meeting the particular standards or regulations applied to the goods in question. The developed country partner, in turn, has the assurance of the availability of products at competitive prices and can accordingly expand its market without necessarily expanding production facilities directly.

48. The second major component of private sector development strategies will be the provision of appropriate support services. This is a job not only for the government but also for the private sector itself, especially by chambers of commerce and chambers of industry providing centralized support services - such as in marketing - in sourcing of raw materials, in training, in giving information on technological options and investment promotion activity. The provision of management training, as already indicated in chapter II (para. 36), will be of crucial importance. Government involvement is important in assisting such activities to get off the ground, but it does not have to be national Government; local Government can also help in providing such services and this kind of intervention will stimulate regional industrial development in a practical way. The need to diffuse industrial capacity through a country in order both to combat urbanization and to bring improved living standards to more disadvantaged areas is an issue that will be increasingly important in many African countries in the years to come. Some have already taken steps to encourage industrial development at an autonomous regional level. The provision of services, or at least involvement in the provision of them, is a practical means by which a local Government can encourage industrialization of its own region.

49. National support in the provision of services for industry will obviously be of most value in such areas as research and development, developing and adopting technologies to local requirements, and also in helping local industry to meet international standards. This is not only in the former sense of ensuring conformity with international product standards but also in encouraging the diffusion of total quality management methods and also improving packaging and design. The third area of private sector development will be that of a strategic intervention where necessary, in order to give an impetus to industrial growth. This could be especially useful in the areas of encouraging direct foreign investment.

50. The issue of technological development will continue to be crucial for African countries, but it will be essential to have a more action-oriented approach to this question. Attention to the technological issue in the past has concentrated too much upon the rhetoric of technological development, with not enough attention to the details by which technological development is to

be achieved. With a new emphasis on the private sector, considerable attention will have to be placed upon encouraging that private sector itself to take the main lead in technological development, in the articulation of policy, and in the adaptation of imported technology to suit local needs.

51. There is, however, a fundamental change in the question of technology choice, that is a result of the diffusion of automation that will restrict the range of options available for the future. The range of possibilities for technologies is being reduced in spite of the increased flexibility afforded by automation itself. Thus the traditional dilemmas between labour- and capital-intensive technologies have in a sense been superseded. The only technology that can rationally now be chosen, especially if any notion of international competitiveness is to be maintained, is the most competitive technology. For many products, labour-intensive technology will not be competitive on world markets. Thus ideas are often unrealistic that job creation should be the focus of technological choice. What is needed is customer creation, and it is from this that employment generation will follow. But customers will only be found if the product is of good quality, is at an attractive price and readily available, whether domestic or international markets are under consideration.

52. The advent of the computer, and information technology in general, has created a radical transformation of production possibilities that has provided the opportunity to integrate manufacturing processes in a way no earlier technologies have offered. The ability to link the whole process of a company's activities from design through materials processing, manufacture, packaging and transfer, has increased dramatically.

53. Technology policy will be crucial for a correct response, and it will find expression in many areas. The necessary country policies will include the development of education and skills, the provision of consultancy services for small to medium-sized enterprises, and help with marketing and work organization changes. In more detail, this will mean:

(a) Support for the provision of information and advisory services regarding specific technologies;

(b) Support for consultancy services and feasibility studies regarding appropriate technologies;

(c) Support for the purchase of - at the least - demonstration sites where those technologies can be seen in action, and people can gain hands-on experience;

(d) Provision, as far as possible, for a long-term programme of support in order to reduce uncertainty, though not to create dependency;

(e) Encouragement of inter-firm collaboration both in an engineering sense and in a modern buyer/supplier sense. In addition to this, help creating stronger links between educational and technology research institutes, and the bodies they are intended to serve, i.e. manufacturing industry;

(f) Assistance in organizational adaptation. Management expertise is often weak and based on traditional structures. The whole system of managerial control and organizational structures needs to be modernized by less hierarchical or functional activities; and by the adoption of just-in-time technology, total quality management, etc.;

(g) Greater concentration on education, skills and training at all levels. There is clear evidence from the experiences of the developed countries that this has proven to be the starting point for a "virtuous circle of success" in a development context.

54. In most African countries no clear priorities have been developed for technology. There is a need to reorganize a variety of public technology policy institutions. They should be dealing with tasks more relevant to the local economic and technological development and this should be done in more intense cooperation with individual firms and other economic actors. This implies more cooperation between universities, research institutes and firms. There is a specific need to spread information on the use and possibilities of new technologies. This could be done through, for example, establishing specific "information technology centres" with differing targets, e.g., computer-aided design centres. There are many possible alternative forms to organize such centres, but it is important that they are in close contact and cooperation with educational and training institutes as well as with firms. This kind of information technology centre has proved to be rather successful in developed countries. Other necessary measures include the following:

(a) Companies need direct assistance in getting information on production technology developments and making technology acquisition decisions. This could be arranged, for example, through sectoral research institutes, branch organizations or parastatal holding companies employing personnel specialized in information gathering, and creating contacts with sources of technological information abroad. The specialists should carry out contract tasks for individual firms to help create contacts with technology suppliers and technology contract issues;

(b) Similar aid is needed by firms in technology assimilation and adoption matters. In this case, however, the need is for highly specialized knowledge on production technologies and for long-term support that starts before the actual implementation of new technologies and continues until the new systems have been totally incorporated into the everyday activities of the firm. This kind of aid may, in many African cases, be only available through foreign donors;

(c) More general awareness programmes are needed on the effects and possibilities of technological development. They should be associated with an open and wide social discussion on the themes of technological development;

(d) Companies also need more direct financial aid in technology acquisition. This means facilitating the regulation of foreign currency in production technology matters. New production technologies are, however, a means to make the economy more effective and productive and thus

create new possibilities for economic growth and increased exports. The need to make customs procedures less complicated and less bureaucratic is as important;

(e) For capability building it is important that local firms are deeply involved in every technology transfer case, even when foreign donors are completely responsible for the process. Technologies imported should be appropriate in at least three senses: they should fit the existing production processes in the recipient organization, they should raise the technological level of the organization and serve as a basis for capability building, learning and further technological development, and, third, they should support the macro-level national development targets. The last topic may often include, for example, the target of diminishing the variety of machine types and makes in the country.

55. But automation is not the only issue in technology; in other respects, the range of possibilities has increased enormously, especially owing to the prospects opened by biotechnology, the possibilities of new materials, and the changes in the economics of technologies brought about by energy and environmental concerns. There will still be plenty of scope for the invention, development and application in Africa of new ways to make new things. These can result from the use of local raw materials or the adaptation of technology so as to minimize the use of imported materials. Another range of such possibilities is opened up by the need to cater for peculiarities of the domestic market, for which products developed elsewhere are inappropriate.

56. An important question, however, is the effect of technological change on the participation of women in industrial development. The evidence suggests that development and technological change both displace and provide additional employment for women. In sub-Saharan Africa, women have been displaced in traditional beer brewing by imported lager beer and cheaper, imported soap has taken over markets from women who produced soap from palm oil and wood ashes. On the other hand, the export-processing zone in Mauritius provided additional employment for 22,000 workers of which 80 per cent were women. However, the Mauritius example is not widespread in Africa. In general, capital-intensive and high technology production requiring industrial skills and experience has tended to exclude women on cultural and education/training grounds.

C. Small- and medium-scale industry

57. The traditional mode of industrial development adopted in Africa was to concentrate on large-scale industries. A new emphasis on the private sector, to the extent that it also includes a more open and encouraging attitude to direct foreign investment, may be in danger of continuing this emphasis unduly. Certainly large projects are not undesirable, but small and medium industries have several important characteristics that make them particularly suitable for consideration in the African context and which are in danger of being neglected. The advantages of small and medium industries include employment generation, import substitution, encouragement of women's entrepreneurship, development of rural areas, and arresting urbanization, the imparting of increased flexibility to the industrial structure and the imparting of increased resilience to the industrial sector as a whole. Small industry tends to be neglected by policy makers because it involves too many people to deal with individually and often includes the informal sector where contacts with officialdom are avoided. Any one firm will have such a small scale of operation that it is not seen as making a great impact on the economy. As a whole, the small enterprise exhibits in an accentuated form many of the shortcomings of African industry as a whole. The number of functions attached to the manager of the company will be even more than in a larger company. In fact its success may be wholly dependent on one person who has even less time to visit advisory centres or to seek expertise in particular areas. For this reason the appropriate policy response will have to be directed increasingly towards a more positive seeking out of small entrepreneurs to diagnose their problems and to give them appropriate support rather than the setting up of advisory centres of the traditional kind, because small entrepreneurs will be too busy to ever visit them.

58. The policy implications of such a strategy are that a coordinated approach is needed at the national and local level. The specific task of bringing advisory services to small industries means that there are heavy potential demands for trained staff in this field. Thus at the national level the first step will be the encouragement of capabilities at the local level to initiate and maintain such training programmes, in order to produce a suitable reserve of experienced management consultants who can provide information and help to small enterprises.

59. The special characteristics of small enterprises in encouraging rural development also need to be emphasized at the international policy level, and in the formulation of national and international strategies. Particularly in the least developed countries, of which the majority are in Africa, the small enterprise can play a crucial role in industrial development. The significance of that role may not be recognized and, instead, particular emphasis is usually placed upon the health sector, infrastructural development, education, poverty alleviation and nutritional aspects of development. Much more attention needs to be paid, and industry needs to have a clear voice within the debate on these issues, in order to ensure that small industrial enterprises receive recognition as the only means by which self-sustaining development help in the resolution of some of these problems.

60. Increased attention also has to be given to the potential of small and medium industries development as a means of encouraging the increased participation of women in industry. At present less than 10 per cent of the urban, female, economically active population is in the formal manufacturing sector where they represent 5 to 15 per cent of the manufacturing labour force. Given the socio-cultural factors militating against more employment of women, especially at higher levels within the larger enterprises, women's entrepreneurship development may offer greater opportunity for women to be involved in the industrialization process in Africa. When account is taken of the many responsibilities already carried by African women in

practice - often as heads of families and as main income providers - entrepreneurship development can be seen to offer an opportunity of formalizing and multiplying such skills to benefit the wider economy.

D. Environment and energy

61. Associated social problems will certainly include those of the environment, from which no industrial policy debate can take place in isolation. The specific problems in Africa relate in particular to desertification, natural resource degradation, effluent treatment and industrial pollution. As noted in chapter II (para. 30), the environmental issue is one that will necessarily be increasingly at the centre of industrial policy debate in Africa as it already is in other regions. The idea that Africa might be used as a "dumping ground" for polluting industries from other parts of the world will certainly be resisted by policy makers in Africa, but the environmental implications of industrial projects are not always immediately perceived. In particular there will be a need to upgrade capacities at the national level in environmental assessment and regulation.

62. The manufacturing implications of improved environmental control also require detailed assessment. The production of environment-related equipment and of intermediate materials used in pollution abatement and waste treatment are very significant growth areas in which African potential needs to be examined carefully, to provide guidelines for potential producers and to help in identifying investment opportunities.

63. The related issue of energy conservation also raises important questions as far as technical cooperation is concerned. For the majority of African countries, energy is a problem at the national level and that of the individual enterprise, where shortages and unreliability of energy supplies contributes to capacity underutilization and degradation of equipment. Diagnosis through energy audits and technology development and promotion will be two principal emphases as far as energy-related activities are concerned.

64. As regards energy, there is considerable scope for the development of energy savings, wood fuel utilization, and forest conservation. To reduce the rapid deforestation and soil erosion resulting from the intensive use of wood fuel areas, technologies for improved wood and charcoal utilization can be implemented and an array of projects of this type can be launched at a relatively low cost. The socio-economic and environment impacts and the integration of women in rural areas can all be addressed at the same time by creating opportunities for switching from wood fuel to other sources of energy for the suburban and rural populations.

E. Financial resources

65. The above set of themes on which to focus in industrial development should be priorities for action in the short term. Many of them involve fundamental issues of international industrial systems. In particular issues such as industrial product standards, total quality management, environmental control, industrial management skills and technological development will come into play at the same time, and the need for improved efficiency and growth opportunities in African industry will compel consideration of such issues in the steps that are taken.

66. In encouraging such developments, the technical agencies will therefore have to enter into a new partnership with the financial agencies, the bilateral programmes and private companies (national and international). Attention will have to be paid to finding appropriate mechanisms for such cooperation. The present procedures of consultation and coordination are very useful. The United Nations system itself has a long experience with the Administrative Committee on Coordination and its subsidiary bodies. Coordination in development with bilateral donors is also pursued actively through mechanisms such as round tables at the country level. However, these mechanisms need to be supplemented by new ones, in which specific commitments are encouraged from the participants and which have the flexibility to undertake rapid action to deal with changing situations. The need for this is all the more crucial in view of the accelerating pace of change in world industry referred to earlier.

67. Apart from the well-known African development financing institutions, other institutions such as the International Finance Corporation and and the African Project Development Facility are now operating in Africa. The United Nations Development Programme (UNDP) in cooperation with ADB is about to undertake a feasibility study for the establishment of an African finance corporation. The proposed corporation is expected to mobilize equity and debt capital and other finances for private sector projects. It will also assist the African countries in creating an enabling environment and improving the investment climate with a view to attracting both foreign and donestic private investments, thus giving further impetus to the emergence and expansion of industrial enterprises in Africa.

68. The BOT (build-operate-transfer) scheme may also offer an interesting mechanism to African countries to attract private and international capital for investment in infrastructure, which otherwise could not be borne by the state or public utility organizations without further increasing the national debt. A typical contractual arrangement of BOT implies that the private investor receives from Government or public enterprise for a concession period the commissioning to build and operate a plant or service and at the end of the period the ownership of the project and the right to operate it revert to the Government. During the operation period, the private investor receives delivery payment sufficient to pay back the investment in the project and to provide dividends to the shareholders of the project venture.

F. The role of subregional integration

69. Subregional cooperation can also benefit from analysis of experience in other parts of the world, especially in the light of changing industrial structures. In general, there now seems to be fairly convincing arguments against adopting a comprehensive approach initially. Many attempts at economic integration in Africa can

trace their failure to an overambitious programme at the outset. In particular, steps towards economic integration that concentrate upon harmonization of legislation or codes of practice are inevitably extremely time-consuming. Emphasis should rather be placed upon mechanisms and procedures that do not require complete uniformity and unanimity before any progress can be made. The new measures of economic integration and industrial cooperation proposed at subregional level do not have to involve all the members of that subregional organization at the outset. It will be enough at the beginning for a few countries to be involved in whatever this step is, whether it involves an investment project, a relaxation of barriers or a cooperative institution to be set up between the countries concerned. Again, special attention should be given to measures that do not necessarily have major costs associated with them, whether these are foreign exchange costs or domestic resources. Thus investment projects, in particular at the subregional level, need to be treated with considerable discrimination; the need to take subregional views and wishes into consideration can conflict with economic arguments on industrial location and by the time the conflicts have been resolved the assumptions upon which the pre-investment analysis was made may well be out-moded. Considerable efforts have been put into the promotion of such projects by some of the subregional organizations and a great deal of time has been taken up by policy makers in the countries concerned that might have been better spent resolving more pressing problems in the short term. The decision on investment projects would be better left to the private sector, especially in the industrial field, and the increased involvement of the international financing institutions in the promotion of such activities would be the most appropriate course.

70. In regional cooperation, there will be an increasing emphasis on measures that do not require unanimity and a comprehensive approach. A second change that has taken place in the character of regional cooperation is that brought about by the considerable emphasis now placed upon the private sector to which reference has already been made (see para. 40). This means that, just as national Governments have to place their main emphasis upon creating the appropriate environment for the operation of industry, so also at the subregional level there has to be a concentration of appropriate conditions in which enterprises may operate across borders, and also upon the provision of necessary services and support infrastructure for the operation of those companies in ways that will allow them to compete successfully with the changes now under way in other parts of the world. The priorities for subregional organizations thus represent a clear departure from previous ones, where emphasis was placed especially upon multinational investment projects that represent the specific industrial initiatives on the parts of the Governments of the Member States concerned. The special role of subregional organizations in the future should therefore be directed towards the wide range of industry-related services at present lacking in African industry that represent a pressing need for its future development.

71. The role of subregional organizations will be to supplement the efforts of national Governments in providing such services, to the extent that the private sector is incapable of providing them for itself. However, there will be certain cases in which the action taken will be exclusively at the subregional level, since the resources required - whether in terms of finance or in skilled people - will not be within the scope of only one individual country. This is particularly the case in areas such as R and D, quality control and specialized areas of technological services and advice.

72. Apart from the areas listed above, there is an even more important subject in which a subregional organization, as well as national Governments, have a special responsibility to encourage the role of the private sector by providing industrial information and, more importantly, by allowing it to flow freely. At present in many African countries there are severe practical constraints on the flow of information. There is sometimes an absence of foreign newspapers and journals, especially trade and professional journals, usually because there is a shortage of foreign exchange and the opportunities for these journals to circulate are very restricted. Communication within the subregion may also be difficult, both because of lack of transport and telecommunication facilities and also because there has been an external orientation more towards certain developed countries rather than neighbouring countries, especially if there are language barriers. This situation prevails particularly in West Africa although there are a number of other regions where language barriers represent a major obstacle to subregional cooperation. It is therefore particularly important that special efforts be made to ensure that information flows freely and that thereby the manufacturer gains access to the kind of market intelligence and basic facts needed for the successful operation of his or her business.

73. Another area of action, especially at the national level, will be the development of assistance to the private sector through the encouragement of partnerships and subcontracting relationships, either within the manufacturing sector of the country concerned or between enterprises in and outside the country. This can be encouraged through legislation and services that foster the growth of such partnerships. The need for them is clear; it is both as a means of achieving economies of scale and scope and also as a means of ensuring in a practical way the flow of technology and the upgrading of the necessary skills to meet enhanced competitive requirements of a larger market. Numerous examples exist of a successful upgrading of skills through the development of considered subcontracting relationships, where a close partnership is entered into between the supplying firm and the purchasing firm. This aspect has already been referred to in chapter II (para. 36) as a characteristic of the most successful aspects of modern industry and it is a process in which African industries should be especially encouraged to take part.

## IV. INTERNATIONAL COOPERATION - AN OUTLOOK

### A. Sectoral emphases

74. The industrial development of Africa has scarcely begun. The in many cases painful experience in industrialization through the last 20 or 30 years since independence has been for

most African countries a disappointing experience. And yet something has been achieved: countries with natural resources have in some cases been able to institute processing of raw materials instead of exporting all of them untreated. In a number of countries, against great difficulties and with support neither from Governments nor from international organizations, entrepreneurs managed to create and maintain enterprises that produced industrial products previously unknown in the country. If the achievements of African industrialization appear small, they must be considered in the light of the difficult policy environment and the inappropriate allocation of resources made at the national and international levels.

75. A transformation will not be quickly achieved. In the short term African countries will not be able to change the basic orientations of their economy from natural resources producers to become industrial countries. It is important nevertheless to lay the groundwork by selecting a set of priority areas or branches in which industrial activity can be encouraged. Industrial investment projects will have to stand or fall on their own merits, as to whether they are profitable or not, and it cannot be the task of either Governments or international organizations to attempt to change these fundamental facts. But it can, and indeed should, be the duty of policy makers, whether at national or international level to examine carefully priority areas if they would yield profitable investment projects, and those priority areas can reflect a wider concern, comprising subjects that are closely related to resource endowment or to broader issues of socio-economic development, such as housing. A large number of projects for the production of low-cost building materials can be launched with private entrepreneurs and local communities. These are typical small industries that are labour-intensive, require low capital investment and no special skills, use local raw material and improved simple technologies. Government bodies should be involved only for identification of entrepreneurs, capitalization of know-how, dissemination of information and sustainability of efforts by ensuring financial support. New mining activity for the production of local minerals that have not yet been tackled would create jobs and open small transformation industries where the special skills of people can be fully utilized. Mineral processing will continue to represent a promising area of this kind, both because of the need to maximize value added and foreign exchange earnings but also because of the spin-off in terms of the creation of auxiliary industries that supply essential inputs to the extraction and processing stages. Agro-industries represent a very obvious area of concentration for economies still heavily based upon agriculture and in need of rural development. But many opportunities exist in this field for international involvement, especially in the area of processed foods for export and of moving textile and garment production up to higher levels of international competitiveness in terms of quality and design. Again, the opportunities for increased women's entrepreneurship in the food-processing and textile industries, in which UNIDO has some encouraging experience, need to be widely developed. The same is true for leather and leather products industries, where UNIDO has developed a successful regional programme. Infrastructural development can provide a further focus for the manufacturing sector. Infrastructural investment projects should not be seen as competition for industrial projects but rather as a source of potential opportunities for the supply of local raw materials in construction, and also as a means by which increased efficiency and flow of goods, workers and consumers can contribute to a more efficient market that will encourage the consumption of industrial goods. The same considerations apply to telecommunications development. Again, in the field of transport and communications, road transport in Africa suffers from a poor network and bad quality surfaces. Systematic development of asphalt roads can be undertaken locally through simple asphalt production units within existing petroleum refineries or idle ones. (For instance, in the PTA region 3 out of 10 petroleum refineries are not operational.) The whole health sector offers a considerable potential as an area of concentration, not only in terms of an enormous range of simple equipment needed for improved health services, such as bandages, hospital utensils and simple equipment but also in areas such as vaccine development and production, where a number of successful centres already exist in Africa that could provide the focus for new industrialization options. Industrial utilization of medicinal and aromatic plants can be expanded and this could stimulate the private sector, increase women's employment, and also promote factory rehabilitation and trade between African countries. Environmental problems that require attention in Africa are not only those related to global warming. An important concern is desertification. There are also water problems and the pollution of lakes and rivers. UNIDO has strengths in some of these areas, such as drip irrigation for combating desertification and the use of ultraviolet light to destroy bacteria in water.

76. The above set of sectoral focuses for industrial development should be priorities for action in the short term. Many of them involve very fundamental issues of international industrial systems. In particular, issues such as industrial product standards, total quality management environmental control, industrial management skills and technological development will be involved in most of them and the need for improved efficiency and growth opportunities in African industry will compel consideration of such issues in the steps that are taken. This means that the role of the international organizations will be a wide one, since it will be their task to ensure that these dimensions are taken fully into account.

77. As regards the role of development financing institutions (DFI), one of the major problems in Africa is that, while substantial loans have been made available by the World Bank and the African Development Bank, there is a very low rate of disbursement. One reason for this is that national institutions have difficulty in building up the necessary capabilities and capacities to implement the projects or even design them in a bankable and implementable form. In this connection, United Nations agencies including UNIDO, have a pivotal role to play. Funds emanating from the IDDA programme, apart from their traditional usage, could be of particular value in providing assistance to the African

countries to enable them to have the World Bank loans disbursed. Sectors of concentration would be agro-industry and engineering industries. Such funds could also act as seed money and play a powerful, catalytic role in helping African countries in the disbursement of and attracting resources from DFIs. UNIDO's specific expertise in pre-investment analysis is of special relevance here.

78. Technical cooperation among developing countries (TCDC) can also be an increasingly important element in the industrial development of Africa, and many examples of enterprise-level cooperation already exist. They benefit both developing country cooperating partners. The recipient obtains appropriate technology, plant and equipment and services at much lower costs and the supplier partner benefits from market access and export earnings. Similar cooperation with Eastern European countries is another significant possibility.

B. New directions in international support

Trends in foreign direct investment

79. Compared with the total world-wide FDI, Africa accounted for only 1.19 per cent in 1991, a share that was almost identical in the late 1980s. Within the whole group of developing countries, the proportion of investment flows to Africa is rather erratic. In 1986 and 1989 it was over 12 per cent whereas in 1987, 1988 and 1990, it fluctuated between 7 per cent and 8.7 per cent. The situation appears even more discouraging since most investment is undertaken by affiliates that already have investments in Africa and there are even cases of large transnational corporations acquiring existing foreign-owned companies without contributing to the overall amount of FDI. Flows of FDI to Africa averaged $1.4 billion a year between 1980 and 1985 and rose to an average of $2.6 billion a year between 1986 and 1990. The year 1989 saw an exceptional peak of $4.4 billion although nearly 80 per cent of this investment was concentrated in just two oil-exporting countries. Yet, although this rising trend is encouraging, it must be remembered that it is, to a large extent, a reflection of the shift in investment in Africa from the public to the private sector and does not necessarily mean an increase in investment in absolute terms. Moreover, throughout the 1980s, over 70 per cent of total FDI to Africa was directed to oil-exporting countries. Non-oil exporting countries in Africa, most of which are classified as least developed countries, received on average less than $0.5 billion per year in total for all those countries during the second half of the 1980s.

Trends in official development assistance

80. Another feature of the international environment that has changed radically and which can be expected to undergo further change in the future is that of official development assistance (ODA). One influential factor is the decline in economic resources at the disposal of Governments, owing to generally depressed economic conditions in developed countries. In addition, there has been a questioning of the role of official development assistance and a search for new mechanisms to make it more effective. The phenomenon of "aid fatigue" has been remarked. The need is clear for a renewed dialogue and international examination, involving donors and recipients. At the same time, conditions are not conducive to such a dialogue in a situation where both developed and developing countries, particularly in Africa, face increasing economic difficulties, and where the latter feel that, as a result of structural adjustment programmes, they have made many sacrifices without significant impact either in terms of increased FDI or greater ODA inflow. The impact of ODA on industrial development has been very limited. The continent has yet to experience the revival in interest of foreign investors and commercial lenders now being experienced in Latin America, for example.

81. Total net resource flows to Africa have virtually stagnated over the last decade. In 1980, net flows to sub-Saharan Africa totalled $24 billion, rising to $25 billion in 1986 only to fall back to $23 billion in 1991. In the case of North Africa and Western Asia, total flows in 1980 were $17 billion, falling to $8 billion in 1986 and also amounting to $8 billion in 1991. At the same time, however, the role of aid to Africa as a share of those financial flows has become even greater. The influx of ODA, which in 1980 accounted for 50 per cent of all flows to sub-Saharan Africa, contributed 68 per cent in 1986 and a massive 83 per cent in 1991. In North Africa and Western Asia, the relative proportions were 41 per cent in 1980, 67 per cent in 1986 and 89 per cent in 1991.

82. Aid to Africa now accounts for 11 per cent of the region's GDP, compared with just 0.5 per cent of GDP in Latin American and 1 per cent in Asia. Now, however, fears are growing within Africa that it will be squeezed from centre stage in the world aid arena by the needs of the newly democratizing States. With the end of the Cold War it seems reasonable to suppose that the major donors would expand significant levels of aid to that area and reduce their involvement in African countries. Unfortunately data on ODA to Eastern Europe is not available since financial aid to this area started after 1990. Certainly aid from that source to developing countries, including Africa, has fallen.

83. The situation with respect to ODA for industry is even more complex. First of all, ODA to industry has occupied traditionally a very small part of the total, presumably because the needs of developing countries in terms of health, nutrition, and infrastructure were seen as more immediately pressing. The longer-term dynamic characteristics of industrial development were therefore neglected, from the point of view of ODA, and attention was focused on other sectors. Even here, the indirect possibilities for manufacturing were often neglected. The potential role of the local manufacturing sector in supplying inputs into development assistance projects in other sectors were not taken properly into account. A range of building materials, furniture, hospital equipment and educational materials, as well as many of the inputs to agriculture such as fertilizer, pesticides and agricultural machinery are typical components of such projects and, in principle, offer opportunities for involvement of the local manufacturing sector. Too often, however, such

possibilities were not taken into account, allowing for no indirect stimulus to local industry as a result of the ODA disbursed in the country.

84. An analysis of aid inflows by sector shows that industry, mining and construction received only 3.4 per cent of total aid from Development Assistance Committee countries in 1990, with a further 6.6 per cent of total Official Development Finance for that sector coming from the World Bank group.

C. The scope of UNIDO support

85. The new proposals of the Director-General of UNIDO for priorities and structural reform have identified five development objectives for the grouping of present and future demand and services (GC.5/23, para. 39):

(a) Industrial and technological growth and competitiveness;

(b) Development of human resources for industry;

(c) Equitable development through industrial development;

(d) Environmentally sustainable industrial development;

(e) International cooperation in industrial investment and technology.

86. In the light of the discussion in the present document, these objectives can be seen to be of special significance for African industrialization. Point (c) will be of particular relevance to the least developed countries of Africa. Combating poverty through the gradual transformation of agrarian societies into industrial economies and the associated productivity improvements will be an important part of overall socio-economic development. The proposals recognize in this connection the need to develop industrial entrepreneurship, increase the participation of women in industry and create indirectly-related employment opportunities in poverty-stricken regions through regional disposal of industrial development and the promotion of small and medium enterprises.

87. The proposals also recognize the need to enhance the field representation of UNIDO (ibid., para. 59) to promote UNIDO services at the country level, to reach an increasingly diverse clientele, including those in various regions of individual countries, and the need to develop packages of integrated services. For Africa, with a large number of countries to be addressed, the need for increased representation is critical, as is the need to provide a range of services and a multidisciplinary response. In this context, special consideration may therefore be given to the proposal for subregional offices.

D. UNIDO's ten-point programme for Africa

88. The Ministers of Industry of the African region had an opportunity prior to the fifth session of the General Conference to review collectively the industrial performance and trends and new horizons for UNIDO technical cooperation intervention at the eleventh meeting of the Conference of African Ministers of Industry, which took place at Port Louis, Mauritius, from 31 May to 3 June 1993. On the basis of that review they issued the Mauritius Declaration on Africa's Accelerated Industrial Recovery and Development in the Context of the Second Industrial Development Decade for Africa (1993-2002) and Beyond. 6/ A new approach to the problems of industrialization in Africa was outlined by UNIDO in the document entitled "The challenge of African industrialization and the UNIDO response", which contained a ten-point programme and some amplification thereof. The UNIDO response to the challenge of African industrialization will be within the framework of national or subregional plans and programmes. In addition, it will also be based on the Director-General's proposals (GC.5/23) on priorities and structural reform of UNIDO. Paragraph 55 of that document states that "UNIDO will base its delivery of services on the industrial development strategies drawn up by individual countries".

89. In the light of continued review and intensive analysis of UNIDO's programmes undertaken this year, the present section contains an elaboration of the ten-point programme, indicating possible elements that may be appropriate depending on the specific national situation.

A. Assistance in the development of appropriate strategies for industrialization in the context of market-oriented economies, and in the formulation of policies, procedures and guidelines for the enhancement of initiatives for private sector development, including in sectors of national priorities and new areas of emphasis, particularly electronics and informatics.

90. This programme point encompasses a number of subject areas. However, the common theme is the area of assistance that UNIDO would address in direct support to Governments in order to assist in building up national capacities. The present document has outlined the ways in which changes in the world economy have impelled a revision of the role of Government in industrialization. The new emphasis on the private sector and the enabling environment needed for it to flourish means that industrial policies have to take due account of that emphasis. UNIDO activities in this regard will include further development and elaboration of the approach of strategic management for industry which has been successfully applied in many African countries, as well as in other developing regions. The emphasis in that approach is upon dialogue between the private sector and policy makers so that the needs of the private sector may be better understood by providing forums and contexts in which the private sector can articulate its requirements for effective functioning. The policy makers, in turn, are given a means of determining necessary conditions to meet these requirements within the existing external and internal constraints. The international aspects of such an approach are of

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6/ CAMI.11/13, annex VII.

particular importance: given the changes in the world economy already referred to and the impact of technological change in particular, there will be a constant need to inform both policy makers and the private sector directly of such changes and provide support in the determination of appropriate responses. The experience of other developing regions is also of specific relevance to Africa: in particular, the successful growth of many Asian countries will provide important lessons, upon which UNIDO intends to draw. Certain characteristics of this success will be specifically emphasized under this heading. They include the identification of strategic sectors, the development of technology policies, the fostering of links between technological development and industrial development, the emphasis on an export-led industrial growth and the harmonization of the industrial with the macroeconomic framework. In this dialogue, which UNIDO will support, between policy makers and the private sector there is also scope for determining the direct requirements for UNIDO support in the future. For this reason, special attention will be paid to the rationalization of the policy dialogue at the national and international level in order to make the best use of UNIDO resources and to ensure that opportunities are grasped on every occasion for better understanding within the Secretariat of the specific problems of the private sector in the individual developing countries. With respect to the issue of strategic sectors, the emphasis on electronics and informatics made under this heading is regarded as a particularly important choice. As indicated earlier in the present document (see paras. 50-54), these sectors are not just important in their own light, they are also highly significant as having an impact on technology across all production sectors. Mastery of electronics applications and computer applications in industry in general is crucial for competitiveness in the future. Even if a country is not in a position to enter into the production of electronics materials, there is nevertheless a requirement for all countries to have some mastery of the techniques of using electronics and computers to improve the efficiency of the processes and enterprises within the manufacturing sector. UNIDO will therefore concentrate in particular on the diffusion of electronics techniques in Africa, as well as the application of computers. These may be conventional applications in the sense of the traditional use of computers for management purposes, as well as in industrial automation. Under this heading national programmes will be an important focus.

B. Assistance in the development of increased regional industrial cooperation.

91. As indicated earlier, there is a major role for the subregional organizations in Africa in improving the availability of industry-related services at present lacking in African industry which represent a pressing need for future development. These include the following:

(a) Research and development;

(b) Industrial products standards;

(c) Total quality management;

(d) Human resource development;

(e) Industrial automation;

(f) Packaging and design;

(g) Marketing skills;

(h) Industrial management skills;

(i) Industrial repair and maintenance;

(j) Enterprise accounting;

(k) Inventory control;

(l) Production planning.

92. The list is not exhaustive but it indicates the wide range of industry-related services that may be an appropriate focus for subregional action. In specific cases, the UNIDO support will be the provision of assistance or the strengthening of an existing institution in the subregion in question to allow it to play a subregional role. In most cases, however, the emphasis will be upon the building up of networks in the subject. By so doing, individuals, research institutes, universities, or enterprises in the various countries will themselves be mobilized to exchange experiences, develop techniques and methodologies, and diffuse experience through the subregion. Such networks will often be more accessible and more cost-effective than supporting a simple institution located in one country at the expense of others. The role of UNIDO will be to provide an international "window" for these networks, providing advice and expertise, together with assistance in the development of software and the carrying out of diagnostic surveys. The extension of the subcontracting exchange approach at the national level to one at the subregional level is another example of the kind of linkage that will be fostered by UNIDO under this heading.

C. Implementation of an expanded programme for entrepreneurial training and development, up to the stage of preparation of business plans and development of linkages, including with foreign enterprises.

93. This programme point concentrates upon the human resource development aspects. It will concentrate in particular on mobilizing the existing entrepreneurial skills in Africa into industrial channels. The skills involved cover a wide range but the most crucial one is the ability to identify an opportunity and determine how to exploit it. UNIDO has successful experience in entrepreneurship programmes that will be further expanded under this heading. In particular, the UNIDO activity in the encouragement of women's entrepreneurship, and the training materials and workshop practices developed to date will be further enhanced. The role of software is also important: UNIDO has with its PROPSPIN and COMFAR software already made a significant impact on the specific business needs in investment project appraisal. This approach will be further developed to provide simple to use software tools that will be both educational and of practical application in the analysis of business opportunities and the enumeration of requirements for success. At another level, the programmes of technology acquisition and training and negotiation will be further developed under this heading. The acquisition of technology and the evaluation of alternatives are crucial steps in the success of many enterprises and for this reason UNIDO programmes in this regard will be strengthened

particularly with respect to Africa. Again, software for this purpose will be investigated to encourage a diffusion of the necessary skills.

D. Implementation of a comprehensive programme for development of small and medium industries.

94. Small and medium industries development does not need further arguments in its favour: the links with employment creation, with rural development and poverty alleviation are well recognized, but a comprehensive programme of small and medium industries development requires action at a number of different levels. The UNIDO focus will therefore emphasize the analysis of national policies especially as to the degree to which the framework is supportive of small and medium industries. The focus will also emphasize institutional support, providing the necessary external inputs as required to organizations of small enterprises such as chambers of commerce and industry (again, this activity will also use the opportunity to obtain feedback on UNIDO services and new requirements). The institutional support provided will concentrate on allowing these organizations to reach a wider clientele. UNIDO itself cannot directly address individual small enterprises, but the existing chamber of commerce or industry may be equally ill adapted to doing so, especially given past policies pursued at the national level. For this reason a special emphasis will be made upon diagnosis of the existing institutions and the degree to which they are structured to meet the needs of small and medium industries. The international experience of UNIDO will allow it to make recommendations in this regard, modified in the light of the intended expanded dialogue with the small and medium industries themselves, which will be a special focus of the programme. The range of services to be offered by the institutions will also call for a variety of specific support from UNIDO, depending on whether the activities are in the fields of technology, finance or management services. Two successful UNIDO programmes - in the area of subcontracting exchanges and in the encouragement of women's entrepreneurship - will be further enhanced under this heading. Valuable experience in the Jua Kali-type industries (small enterprises) will be applied in expanded programmes for rural industrialization.

E. Development of sustainable institutional capability for industrial services and support to local enterprises in cooperation with local chambers of commerce and representatives of industry groups and associations.

95. Following on the diagnosis referred to above, the specific nature of support provided by UNIDO will vary according to the identified needs. In some cases, specific training activities may be required. In other cases, assistance in the development of information systems and networks may be appropriate. The institutions may also be anxious to play new roles, for instance in investment promotion. More fundamental assessments of the purpose and functions of the institutions in question may also be required, and this may lead to specific assistance in management aspects, in training skills, and in the organization and funding of advisory services. Finally, technology services, especially in assisting in diffusion of new technologies and awareness programmes, will also be particularly important, and these will be assisted by UNIDO through providing the necessary international linkages in terms of information, expertise and partnerships. In this context, the renewed emphasis within the UNIDO Secretariat on communication, teamwork, and information systems will encourage the application of experience gained in other countries for successful operation of institutions dealing with small and medium industries.

F. Assessment of new technological applications in sectors and branches in African countries and dissemination of technological information and provision of training facilities and linkages for African enterprises.

96. The present document has emphasized the important role of technology not only in determining the new and changing structures of world industry but also in affecting the degree to which African enterprises can successfully compete at an international level. The role of UNIDO is of particular importance under this heading because its international perspective and responsibilities give it a unique outlook in this area. UNIDO support in this regard will build on and integrate existing programmes and be directed specifically towards the concerns already identified in chapter III of the present document. UNIDO will provide advisory services on technology choice and also give support to technology institutions. These may be R and D institutions or others where the purpose will be principally to demonstrate existing technologies for application in industrial enterprises. This will be particularly important with respect to computer applications and to industrial automation. In addition, UNIDO will foster cooperation between individual firms and technology institutions, especially through the development of detailed country programmes, as well as subregional programmes, in this regard. Analogous to the networks already mentioned at the subregional level, special focus will be made upon integrating technology diffusion and development policy in individual countries with the actual use of technology by the private sector in manufacturing. UNIDO will provide appropriate experience from other parts of the world in order to assist in development of these new links between enterprises within a country and the technology institutions. Similarly, international linkages for further enhancement and dissemination of technologies will also be supported by specific UNIDO action, especially through the establishment of contacts and linkages with foreign sources of specialized technological expertise. National policy for technological development will also be an increasing focus of UNIDO activity, especially directed towards integrating technology policy with industrial policy and, in consultation with other United Nations organizations as appropriate, with trade policy.

G. Assessment and determination of appropriate interrelationships between environmental and ecological needs and industrial growth and priorities in African countries.

97. UNIDO activities under this heading will include specific support in the formulation of national policies for environmental control and

specific diagnosis of the main requirements for improvement in the industrial sphere. The development of detailed environmental assessment techniques and regulatory skills will also be an area of particular support at the national level, upgrading capacities through the provision of specialized training and study tours. At the industrial branch level, diagnosis and policy recommendations and action programmes have also to be developed and UNIDO will provide assistance in this regard, in particular through specific expertise and guidelines from other countries that may assist in determining an appropriate strategic response at the industrial branch level within a country. By extension, specific enterprises, especially those potentially environmentally degrading, will also be of special focus. The provision of training and information will be a significant emphasis: many countries and enterprises will need information and skill upgrading related to techniques of pollution abatement and pollution control. In addition, the adoption of new technologies, more consistent with the goal of ecologically sustainable industrial development, will be encouraged. As noted in chapter III, the production of environment-related equipment and of intermediate materials used in pollution abatement and waste treatment are very significant growth areas in which the African potential needs to be examined carefully. UNIDO will undertake, as required, opportunity studies and feasibility studies in this regard. In addition, the encouragement of new technologies based upon natural materials, such as in the fields of pesticides and fertilizers, will also be given an increased emphasis. Given the problem of water shortage in many African countries, special focus will be placed upon the industrial use of water, in order to minimize the use of scarce resources and ensure that these are reused as much as possible elsewhere. As regards energy, there will be a special concentration on industrial energy use. The diagnosis of inefficient energy use through energy audits, building on successful UNIDO experience in this field, will be continued and expanded in African countries, in order to identify energy wastage and determine appropriate remedial action. The underutilization and degradation of industrial capacity through inadequate power sources will also be addressed through detailed programmes of electric power diagnosis, power generation upgrading, diffusion of mini hydro and other energy resources, and development of new systems of power stabilization and emergency supplies, will therefore be undertaken to improve the manufacturing sector's access to power on an assured basis. Small-scale energy use will also be a focus of attention in the UNIDO programmes, particularly in assisting in the process of rural industrialization and to minimize deforestation and consequent desertification.

H. Dissemination of information and provision of advanced management training for local entrepreneurs in African developing countries and development of sustainable institutional facilities for this purpose.

98. A number of activities under this heading complement those discussed under heading C above by focusing in particular on the needs of larger enterprises that are past the start-up phase and are seeking to expand, diversify and upgrade their quality and skills. The imperative of greater links between African industry and the world economy will make this programme area of particular significance. The need for assessment of the competitiveness of industry will be met through a set of special activities that address the key areas of modern industry management in practice. These include the following: management information systems, quality assurance, total quality management, packaging, design, marketing, and industrial finance. These important areas will be dealt with through training and awareness programmes, information activities, support to relevant institutions, direct policy advice, and the provision of suitable publications and software. Familiarity among African managers with the multiple range of skills needed in modern industrial enterprises will assist the successful growth of the enterprises, foster international linkages, and provide a basis for longer-term growth. Again, the international role of UNIDO will enable it to provide successful experience from other countries in specific applications of the new techniques. For instance, in design, the establishment of successful linkages with markets requires a close appreciation of designs, as well as of the technologies required to implement them quickly and successfully in response to market changes. Industrial design centres will be supported, but a wider approach will include the encouragement of international linkages - for instance, the establishment of partnerships between enterprises in the garment industry in developed and developing countries. In quality assurance, the growing spread of the ISO 9000 standard will be encouraged through specific information and training activities. The successful application of total quality management methods in some developed countries will be introduced to African enterprises through the establishment of awareness programmes as well as direct enterprise-to-enterprise linkages. A new emphasis on financial skills and management techniques for industrial enterprises, including aspects of financial engineering, will also be explored in the context of the African manufacturing sector.

I. Expansion of investment promotion activities and assistance in identifying and contacting potential foreign partners on a continuing basis.

99. The growing internationalization of the manufacturing sector and the need for African industry to become fully a part of this process, make very necessary the accordance of a high priority to investment promotion activities and the fostering of partnerships between African industry and firms overseas. The benefits are not only in terms of capital resources, but more importantly the upgrading of technology and skills that may take place as a consequence. Investment promotion activities will continue to be addressed through the many tools at the disposal of UNIDO, such as investors guides, investment forums, the Investment Promotion Service network, etc. However, the range of partnerships considered will be expanded to include a wider appreciation of the various types of linkages that may be envisaged. The traditional investment project seeking financial backers from abroad will continue to be a focus of UNIDO activity in Africa, as in other parts of the world. However, other forms of partnership including technology licensing, joint ventures, subcontracting, joint marketing agreements, and strategic alliances of a variety of forms will also be encouraged by UNIDO. This

will be done especially through the initiation of an integrated information system that will assist UNIDO in identifying suitable contacts and appropriate partnerships for African enterprises on request. The process will be further enhanced by the systematic collection and classification of information on African industry at the enterprise level. Investment promotion will also be furthered by assisting in institutional development, expanding the support given to national investment offices in African countries, and giving advice and support services on the establishment of industrial estates and export processing zones.

J. Increased dissemination of industrial information to African countries.

100. Information dissemination is a very wide-ranging set of activities, yet it is probably - given the emphasis on the private sector and the fact that industrial development will be undertaken mainly by a large number of small enterprises - the most effective means by which UNIDO can familiarize African manufacturers with economic, technological and market issues of relevance to their success and the growth of their enterprises. UNIDO will do this in two ways, by expanding its international network of information provided on request to African countries, and also by assisting in the formation of information networks within the countries themselves, complemented by subregional activities of this kind. The means by which UNIDO disseminates information will be kept constantly under review, focusing in particular on the possibilities for expanded computer linkages among countries and with UNIDO, the provision of user-friendly software to allow for easy access to information, the diffusion of information on electronic media such as CD ROMs, and a new, systematic approach to publications based on an assessment of the major needs of African industry in information terms and a careful consideration of the forms in which this information might be conveyed. The production processes of publications and other media within UNIDO will be accelerated in this regard in order to ensure that the information provided to African Governments and enterprises is up to date and readily accessible. Similarly, the means by which this information will be disseminated will also be reviewed to ensure that the publications and other media reach those best able to make use of them.

## V. CONCLUSION

101. The main lines of activity indicated above that deal with the new ten-point UNIDO orientation for its programmes in Africa, represent only a modest response to the many great problems affecting industrialization prospects in Africa. Nevertheless, they also represent a strategic response, one which may achieve the maximum use of UNIDO skills and resources directed towards the most pressing problems encountered in the manufacturing sector. The activities have to be seen in the context of the limited resources of UNIDO, both in staff and in financial terms, and the other pressing claims upon its services. The implementation of the above programme will therefore depend critically upon a coordinated mobilization of these resources within the Secretariat. Elsewhere, as another part of the documentation for the fifth session of the General Conference (GC.5/23), the Director-General of UNIDO has outlined the new orientation of UNIDO activities as a whole and the new practices to be introduced in order to derive most effective benefits from that orientation. The introduction of more structured teamwork within the Secretariat, the devolvement of responsibility and improved information systems will increase the likelihood of effective responses from UNIDO in terms of the ten-point programme for Africa. Continued dialogue with the development partners in Africa, improved communication with the private sector and, especially, a greater reliance upon experts and institutions from the region will also contribute decisively towards the achievement of these aims.

102. The problems of African industrialization are very great and very complex, and the targets very diverse and rapidly changing. As has been discussed in the present document, the world industrial system is an increasingly elaborate one whose products, processes and organizational approaches are determined by accelerating technological change and frequent changes in consumer markets. If Africa is to industrialize successfully it will have to become more fully integrated into that system, which is the repository of most of the skills, techniques and financial resources so badly needed in Africa today. This in no way diminishes the importance of small and medium industry development, which will continue to be an essential target not only for its own role in spreading industrial activity, in helping rural development, in raising incomes and particularly in encouraging the involvement of women, but also because such development provides the basis for the sustained development of larger enterprises that can grow to meet the competitive challenges of the world economy.

103. Many development partners and other actors are concerned with industrial development in Africa, and the future role of UNIDO will call for increased involvement with such partnerships. They include development finance institutions, the transnational corporations and other developing countries and their enterprises outside Africa. African countries themselves are accelerating the process of regional integration, and African enterprises are increasingly seeking new relationships and wider horizons. Development partnerships will be mirrored by investments and joint ventures in the private sector, and these relationships will offer important opportunities for UNIDO to provide further support, based on its growing concentration of technical expertise. The figure below shows some of the ways in which UNIDO supports industrialization in Africa, now or in the future. It distinguishes between UNIDO action at the national and private sector levels, together with the kinds of specialized technical services UNIDO can offer to other partnerships.

104. However, the pressing needs of African industry are very great in relation to UNIDO resources. For this reason a continuing prioritization of activities will be necessary. Increased efficiency and effectiveness may derive not only from a reduction in areas of emphasis but by giving special attention to the identification of areas of commonality in UNIDO activities. Improved internal information systems will mean greater consistency and coordination of effort, making sure that UNIDO activities support one another towards the goal of African

industrialization. Three broad categories of activities may be distinguished:

(a) Management: keeping enterprises going and growing;

(b) Information: supplying what industry needs to know;

(c) Investment: mobilizing new finance for industry.

105. These three categories are interlinked and cover a wide variety of activities services and industrial branches. The UNIDO response to the challenge of African industrialization must therefore increasingly search for economies of scope, developing modular packages of specific services that can be fitted together rapidly, flexibly and economically to meet the needs of Africa's manufacturing sector. Such an approach will mirror the ways of working that now pervade world industry.

**Figure 1: The focus of cooperation**

| | African Governments | African private sector |
|---|---|---|
| **A. DIRECT UNIDO ACTION** | | |
| **UNIDO** . . . . . ▸ | Policy advice<br>Strategic Management of Industrial Development<br>Information on world industry<br>Technical assistance in institutional development | Enterprise strategy advice<br>Support for chambers of commerce and industry associations<br>Technical cooperation<br>Technology selection and promotion<br>Investment promotion<br>Techno-economic information<br>Rehabilitation |
| **B. UNIDO SUPPORT TO OTHER PARTNERSHIPS** | | |
| **African Governments** . . . . . ▸ | Studies on regional integration<br>Assistance in regional institutional development<br>Regional information systems<br>Regional investment promotion | Institutional development<br>Policy environment |
| **African private sector** . . . . . ▸ | | Joint ventures<br>Investment promotion<br>Subcontracting<br>Technical cooperation<br>Feasibility studies |
| **Development financing institutions** . . . . . ▸ | Industrial surveys<br>Rehabilitation diagnostics<br>Privatization<br>Project identification | Market studies<br>Pre-investment studies<br>Technology selection<br>Procurement |
| **Transnational Corporations** . ▸ | Policy advice<br>Investment codes<br>Export processing zones<br>Industrial estates | Joint ventures<br>Subcontracting |
| **Other developing countries** . . ▸ | Economic cooperation among developing countries strategies<br>Technical assistance in ECDC<br>Institutional development | Market studies<br>Pre-investment studies<br>Investment promotion<br>Joint ventures<br>Licensing |